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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE TRADEMARK TRIAL AND APPEAL BOARD

Proceeding	92054573
Party	Defendant Ortronics, Inc.
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Signature	/s/Mark D. Giarratana
Date	12/17/2012
Attachments	Exhibit P to Smith Dec.pdf ( 5 pages )(261384 bytes ) Exhibit Q to Smith Dec.pdf ( 6 pages )(1700502 bytes ) Exhibit R to Smith Dec.pdf ( 21 pages )(5753138 bytes )

## **EXHIBIT P**

**Cancellation Proceeding No. 92054573**  
**LayerZero Power Systems, Inc. v. Ortronics, Inc.**

**Exhibit Offered by Ortronics, Inc.**

# United States of America

United States Patent and Trademark Office

## LAYER ZERO

**Reg. No. 3,998,542**

**Registered July 19, 2011**

**Int. Cl.: 9**

**TRADEMARK**

**PRINCIPAL REGISTER**

ORTRONICS, INC. (CONNECTICUT CORPORATION)  
125 EUGENE O'NEILL DRIVE  
NEW LONDON, CT 06320

FOR: EQUIPMENT FOR VOICE AND DATA COMMUNICATIONS SYSTEMS, NAMELY, CABLE MANAGEMENT RACKS AND CABINETS FOR COPPER AND FIBER OPTIC DATA CABLES FOR STRUCTURED CABLING SYSTEMS, IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

FIRST USE 11-5-2009; IN COMMERCE 11-5-2009.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

SN 77-580,391, FILED 9-26-2008.

NORA BUCHANAN WILL, EXAMINING ATTORNEY



*David J. Kappas*

Director of the United States Patent and Trademark Office

**REQUIREMENTS TO MAINTAIN YOUR FEDERAL  
TRADEMARK REGISTRATION**

**WARNING: YOUR REGISTRATION WILL BE CANCELLED IF YOU DO NOT FILE THE  
DOCUMENTS BELOW DURING THE SPECIFIED TIME PERIODS.**

**Requirements in the First Ten Years\***  
**What and When to File:**

***First Filing Deadline:*** You must file a Declaration of Use (or Excusable Nonuse) between the 5th and 6th years after the registration date. *See* 15 U.S.C. §§1058, 1141k. If the declaration is accepted, the registration will continue in force for the remainder of the ten-year period, calculated from the registration date, unless cancelled by an order of the Commissioner for Trademarks or a federal court.

***Second Filing Deadline:*** You must file a Declaration of Use (or Excusable Nonuse) **and** an Application for Renewal between the 9th and 10th years after the registration date.\*  
*See* 15 U.S.C. §1059.

**Requirements in Successive Ten-Year Periods\***  
**What and When to File:**

You must file a Declaration of Use (or Excusable Nonuse) **and** an Application for Renewal between every 9th and 10th-year period, calculated from the registration date.\*

**Grace Period Filings\***

The above documents will be accepted as timely if filed within six months after the deadlines listed above with the payment of an additional fee.

**The United States Patent and Trademark Office (USPTO) will NOT send you any future notice or  
reminder of these filing requirements.**

**\*ATTENTION MADRID PROTOCOL REGISTRANTS:** The holder of an international registration with an extension of protection to the United States under the Madrid Protocol must timely file the Declarations of Use (or Excusable Nonuse) referenced above directly with the USPTO. The time periods for filing are based on the U.S. registration date (not the international registration date). The deadlines and grace periods for the Declarations of Use (or Excusable Nonuse) are identical to those for nationally issued registrations. *See* 15 U.S.C. §§1058, 1141k. However, owners of international registrations do not file renewal applications at the USPTO. Instead, the holder must file a renewal of the underlying international registration at the International Bureau of the World Intellectual Property Organization, under Article 7 of the Madrid Protocol, before the expiration of each ten-year term of protection, calculated from the date of the international registration. *See* 15 U.S.C. §1141j. For more information and renewal forms for the international registration, see <http://www.wipo.int/madrid/en/>.

**NOTE:** Fees and requirements for maintaining registrations are subject to change. Please check the USPTO website for further information. With the exception of renewal applications for registered extensions of protection, you can file the registration maintenance documents referenced above online at <http://www.uspto.gov>.

# United States of America

United States Patent and Trademark Office

## LAYER 0

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**Registered July 19, 2011**

**Int. Cl.: 9**

**TRADEMARK**

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ORTRONICS, INC. (CONNECTICUT CORPORATION)  
125 EUGENE O'NEILL DRIVE  
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SN 77-580,392, FILED 9-26-2008.

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# a first look at the data center of tomorrow

Mighty Mo® 10  
and Mighty Mo 6  
Advanced Cable  
Management

Systems for Data  
Centers and LAN  
Applications







# the MIGHTY MO<sup>®</sup>

## data center

### THREE KEY FACTORS

are essential considerations when evaluating cable management systems for today's data centers, storage area networks (SAN), and large premise networks.

#### Airflow

The heat generated from increased server densities and higher speed network equipment makes cooling a top concern for today's IT administrators and data center managers. With heat being the most common reason for equipment failures, proper cooling is essential to reliable operations. Designed specifically to improve airflow, Ortronics<sup>®</sup> Mighty Mo 10 cable management system enables more efficient cooling and reduces power consumption.

#### Density

Mighty Mo cable management systems are fully equipped to handle the density of today's high performance networks while allowing for easy moves, adds, and changes. Both the Mighty Mo 10 and Mighty Mo 6 systems provide ample capacity for a minimum of 48 Category 6a patch cords per rack unit on a single side of the equipment, which is often necessary to avoid a fan tray, power supply or other removable part of the equipment.

#### Protection & Performance

To ensure maximum network performance, Mighty Mo cable management systems protect patch cords, cable, and equipment ports from damage by maintaining proper bend radius requirements, reducing tension on plugs and jacks, protecting network equipment ports, and supporting large cable bundles within the rack.



### Layer 0<sup>™</sup>

#### NETWORK DESIGN

Ortronics/Legrand is revolutionizing networking by adding a new layer to the traditional network architecture. The OSI network model is the accepted framework for network design and suggests seven layers to use for network planning. The bottom layer of this model is Layer One – the physical layer, which is the structured cabling itself, but what Layer One does not include is the physical SUPPORT, or the infrastructure, for the cabling.

Ortronics/Legrand introduces Layer Zero as a new foundation for the OSI model to address the critical role that infrastructure plays in network performance and provide a new level of stability to the network. To ensure maximum network efficiency, we offer a complete range of Layer Zero solutions designed to:

- Reduce power consumption and cooling costs
- Reduce the risk of equipment failure
- Enhance overall system performance



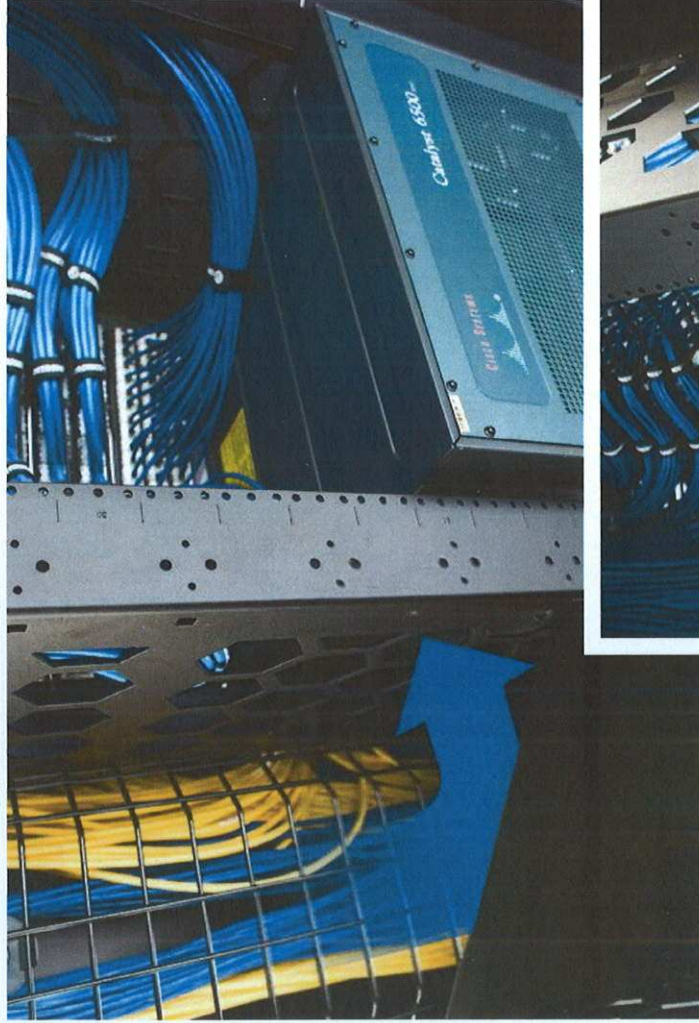
# Maximum airflow, minimum effort

The Mighty Mo® 10, the next generation of Ortronics advanced cable management system, is the first system to combine enhanced cable management with superior airflow in a rack.

For efficient cooling, proper airflow must be maintained in the room, in underfloor and overhead plenums, and within the cable management rack. The preferred method of cooling in today's data centers is the cold-aisle/hot-aisle approach.

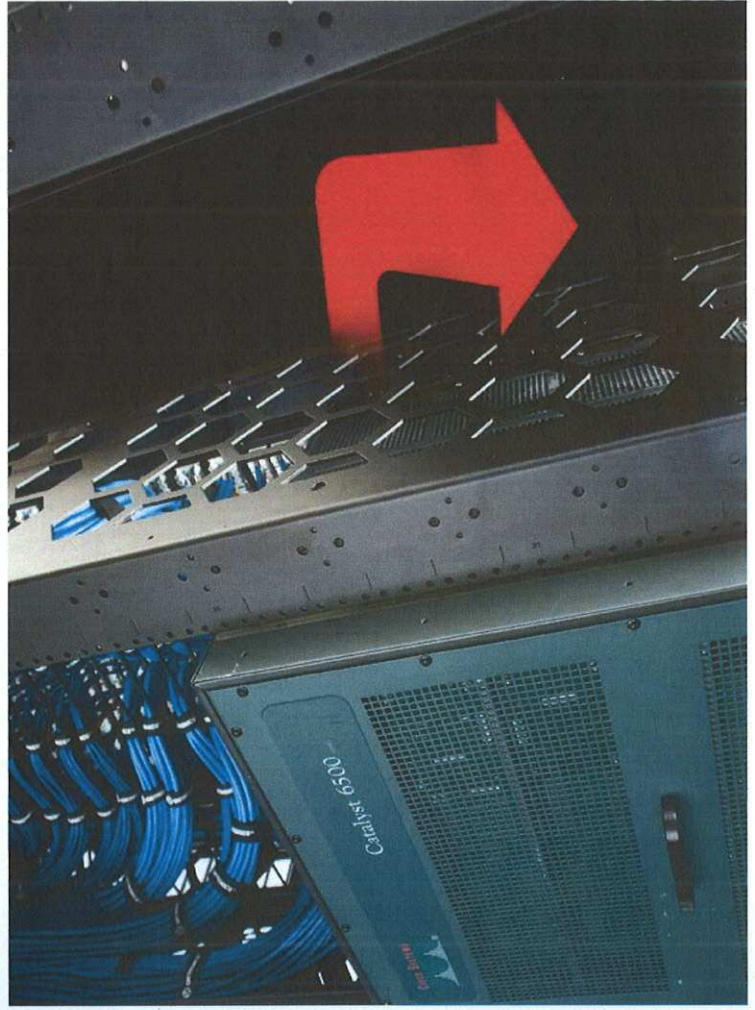
The Mighty Mo 10 is ideal for maintaining cold-aisle/hot aisle airflow, whether your network equipment is front-to-back, bottom or side venting. The Mighty Mo 10 features honeycomb side rails and baffles that redirect airflow from side vented equipment from the cold aisle to the hot aisle. The perforated side rails allow ventilated air to be exhausted, while the baffles ensure the proper flow of air from cold aisle to hot aisle, even with side ventilation. This passive system eliminates the additional 15 to 20 W of power that typical fans consume, making for a more energy-efficient data center with reduced power consumption and energy costs.

Honeycomb side rails remove the barrier to network equipment airflow.

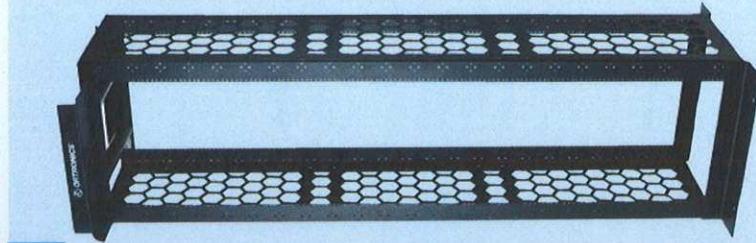


ORTRONICS  legend

Baffles redirect airflow from side-vented network equipment from cold aisle to hot aisle for maximum efficiency.







### Mighty Mo 10

## Cable Management Racks

Mighty Mo 10 racks are designed to maximize the airflow of network equipment. Honeycomb side rails and baffles combine to manage intake and exhaust air creating cold aisle/hot aisle air distribution from side vented equipment. The bottom flange turns inward, allowing it to fit on a 2'x2' floor tile.

OR-MM10716

16.25" channel depth, 7' high, black, 45 rack units

OR-MM10816

16.25" channel depth, 8' high, black, 51 rack units

**Note:** Static capacity 1,500 lbs.  
Assembly required.  
Patent pending.



### Mighty Mo 10

## Server Rack

The Mighty Mo 10 Server Rack works with all of the Mighty Mo 6 and 10 racks and cable management. The mounting rails adjust from 12.5" to 30", independent of the structural members allowing the rails to be adjusted after the rack is installed. Mighty Mo vertical managers can be mounted front or rear. Color is black.

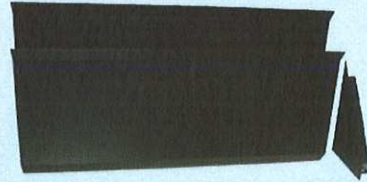
OR-MM107SVR

Four-post aluminum frame with steel EIA rails, supplied with 50 #12-24 cage nuts and screws, 45 rack units, 7' H

OR-MM107SVRABR

Server rack baffle rail for mounting airflow baffles

**Note:** Static capacity: 1,500 lbs. (evenly distributed). Assembly required.



### Mighty Mo 10 Airflow Baffles

Mighty Mo 10 airflow baffles mount between racks and direct intake and exhaust air on side flow network equipment from cold aisle to hot aisle. Patent pending.



### Mighty Mo 10 Cable Management Cage with Door

Cage design promotes efficient routing of patch cords between racks. Hinged doors allow easy access during moves, adds, and changes. 16" wide cage creates a 12.25" gap between racks. 12" wide cage creates a 8.25" gap between racks for front-to-back routing of equipment cables and patch cords. Both are supplied with four spools and 12 bend-limiting clips.



### Mighty Mo 10 Vented Door Assemblies

Door design allows mounting to the front or rear of any Mighty Mo 6 or Mighty Mo 10 rack. The double-hinged door is lockable, pivots to the right or left, and is easily removed.

### Mighty Mo 10 Airflow Baffles

OR-MM10AB71612  
For use with 7' x 16" Mighty Mo 10 rack and 12" wide Mighty Mo 10 cage

OR-MM10AB71616

For use with 7' x 16" Mighty Mo 10 rack and 16" wide Mighty Mo 10 cage

OR-MM10AB81612

For use with 8' x 16" Mighty Mo 10 rack and 12" wide Mighty Mo 10 cage

OR-MM10AB81616

For use with 8' x 16" Mighty Mo 10 rack and 16" wide Mighty Mo 10 cage

OR-MM10AB73012

For use with 7' Mighty Mo 10 server rack and 12" wide Mighty Mo 10 cage

OR-MM10AB73016

For use with 7' Mighty Mo 10 server rack and 16" wide Mighty Mo 10 cage

### Mighty Mo 10 Vented Door Assemblies

OR-MM10VDA7248

7' x 24" with 8.38" clearance behind door for use with VMD-style vertical managers

OR-MM10VDA7244

7' x 24" with 4.38" clearance behind door for use without vertical managers

### Mighty Mo 10 Cable Management Cage with Door

OR-MM10VMD712

With door, 12.13" x 7.3" x 7.45 rack units

OR-MM10VMD716

With door, 16.38" x 13" x 7.45 rack units

OR-MM10VMD812

With door, 12.13" x 13" x 8", 51 rack units

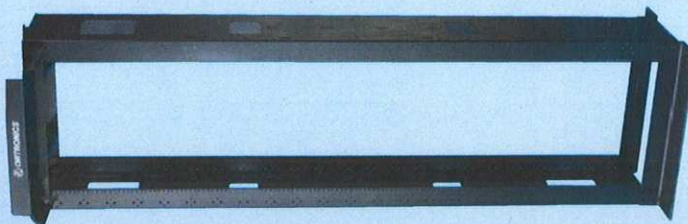
OR-MM10VMD816

With door, 16.38" x 13" x 8", 51 rack units

Patent Numbers 6,946,605, 6,968,647 and 7,026,553

**Note:** Unless otherwise noted, all Mighty Mo 6 and Mighty Mo 10 components are compatible with both racks.





### Mighty Mo 6

## Cable Management Racks

Mighty Mo® 6 racks are available in 6.5", 10.5" and 16.25" channel depths. The 16.25" size is designed specifically for large and heavy network equipment. The bottom flange on the 16.25" standard rack turns inward, allowing it to fit on a 2' x 2' floor tile.

**OR-MM6706**

6.5" channel depth, 7' high, black, 45 rack units

**OR-MM6710**

10.5" channel depth, 7' high, black, 45 rack units

**OR-MM6810**

10.5" channel depth, 8' high, black, 51 rack units

**OR-MM6716**

16.25" channel depth, 7' high, black, 45 rack units

**OR-MM6816**

16.25" channel depth, 8' high, black, 51 rack units

**Note:** OR-MM6710 and OR-MM6716 are available in seismic versions. For more information, contact an Ortronics/Legrand sales representative or refer to the 2009/2010 full-line catalog, Patent No. D360,189



### Mighty Mo Speednut

Faster Assembly!

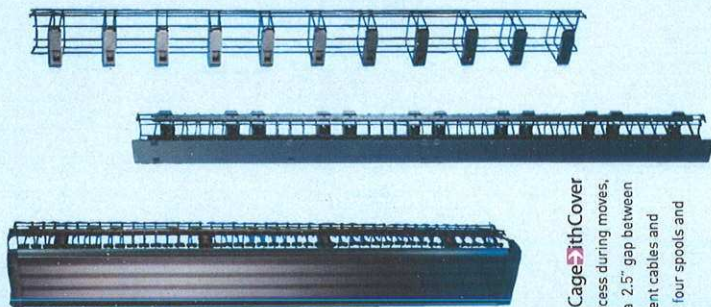
Included with every Mighty Mo cable management rack!

The Mighty Mo Speednut increases the speed and ease of assembly while adding extra strength to your racks. Hold the Speednut behind the rack while hand-tightening the bolts in front. Speednut eliminates the need for a second wrench!

Finish tightening with a wrench and your rack is ready to load.



Vertical Managers promote efficient routing of patch cords between racks.



### Mighty Mo 6 Cable

## Management Cage with Door

Hinged doors allow easy access during moves, adds, and changes. 10" wide cage creates a 6.5" gap between racks. 6" wide cage creates a 2.5" gap between racks for front-to-back routing of equipment cables and patch cords. Both are supplied with four spools and 12 bend-limiting clips.



### Mighty Mo 6

## Vertical Management

### Cage with Latches

Hinged latches allow easy access during moves, adds, and changes. 6" wide cage creates a 2.5" gap between racks for front-to-back routing of equipment cables and patch cords.

### Mighty Mo 6 Vertical Management Cage with Cover

Dual snap-on hinged covers allow easy access during moves, adds, and changes. 6" wide cage creates a 2.5" gap between racks for front-to-back routing of equipment cables and patch cords. 6" wide cage is supplied with four spools and 12 bend-limiting clips.

### Mighty Mo 6 Cable

## Management Cage with Door

**OR-MM6VMD710**  
With door, 10" x 3" x 7", 45 rack units

**OR-MM6VMD706**  
With door, 6" x 8" x 7", 45 rack units

**OR-MM6VMD810**  
With door, 10" x 3" x 8", 51 rack units

**OR-MM6VMD806**  
With door, 6" x 8" x 8", 51 rack units

Patent No. 6,946,605, 6,988,647 and 7,026,553

### Mighty Mo 6 Vertical Cable

## Management Cage with Cover

**OR-MM6VMS704**  
With cover, 6" x 7" x 7", rack units

**OR-MM6VMS706**  
With cover, 6" x 7" x 7", rack units

**OR-MM6VMS804**  
With cover, 6" x 7" x 8", rack units

**OR-MM6VMS806**  
With cover, 6" x 7" x 8", rack units

Patent No. 6,946,605, 7,026,553

### Mighty Mo 6 Vertical Cable

## Management Cage with Latches

**OR-MM6VML704**  
With latches, 6" x 6" x 7", rack units

**OR-MM6VML706**  
With latches, 6" x 6" x 7", rack units

**OR-MM6VML804**  
With latches, 6" x 6" x 8", rack units

**OR-MM6VML806**  
With latches, 6" x 6" x 8", rack units

Patent No. 6,365,934

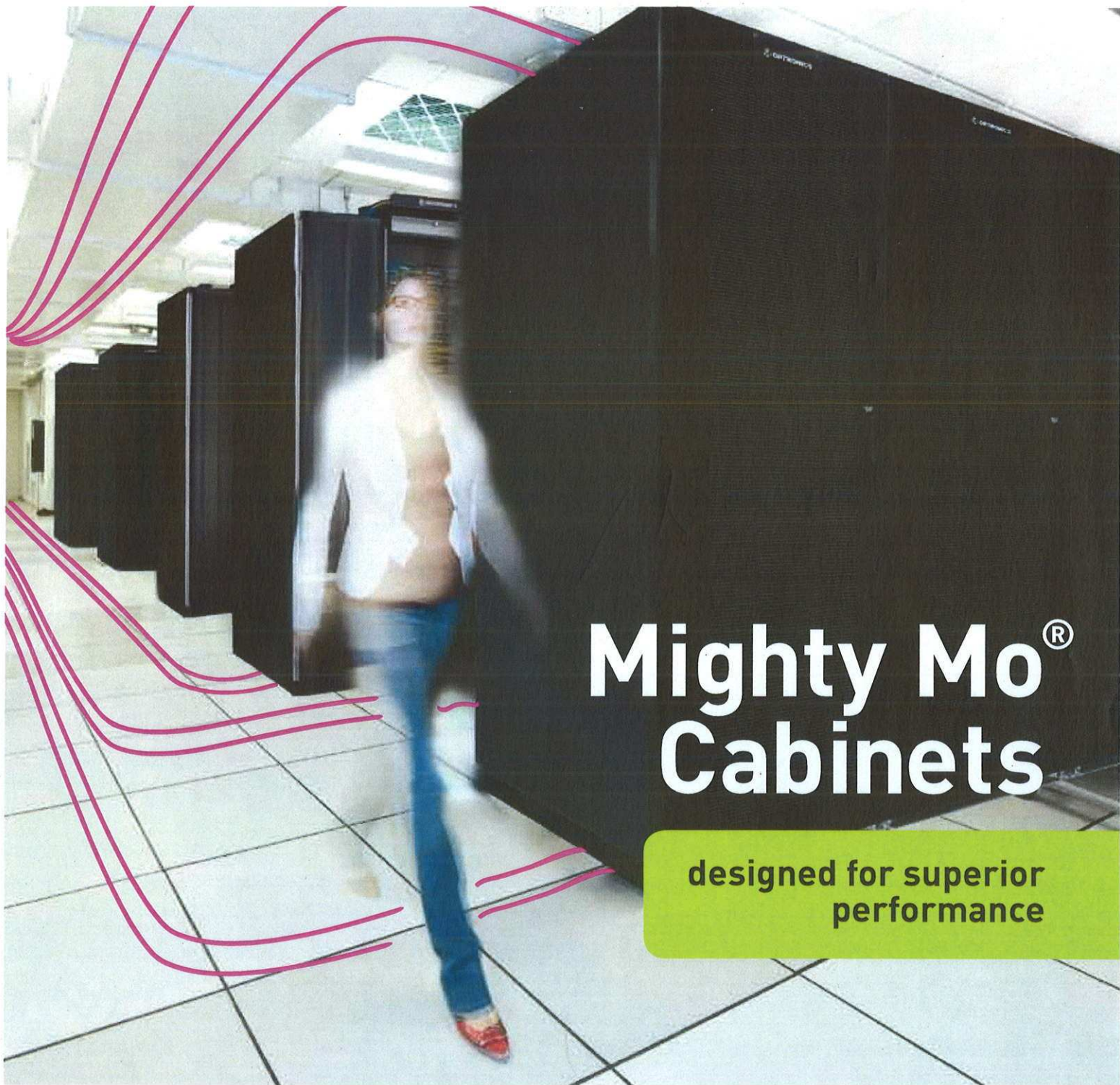
**Note:** Unless otherwise noted, all Mighty Mo 6 and Mighty Mo 10 components are compatible with both racks.

## **EXHIBIT R**

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# Mighty Mo<sup>®</sup> Cabinets

designed for superior  
performance

 **legrand<sup>®</sup>**

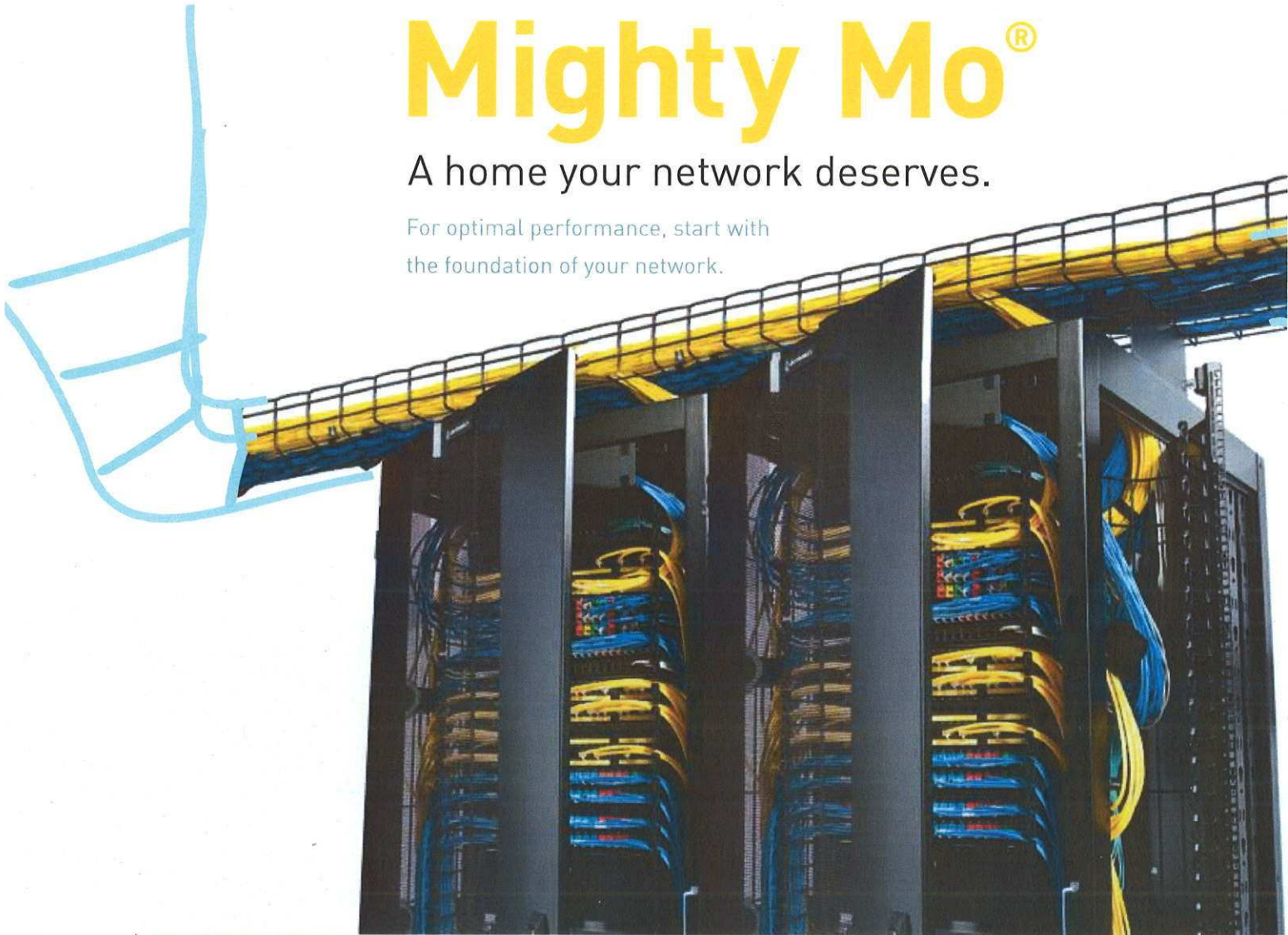
Ortronics



# Mighty Mo<sup>®</sup>

A home your network deserves.

For optimal performance, start with the foundation of your network.



## Layer Zero<sup>™</sup> Network Design



Legrand/Ortronics is revolutionizing networking by adding a new layer to the traditional network architecture. The OSI network model is the accepted framework for network design and suggests seven layers to use for network planning. The bottom layer of this model is Layer One – the physical layer, which is the structured cabling itself, but what Layer One does not include is the physical SUPPORT, or the infrastructure, for the cabling.

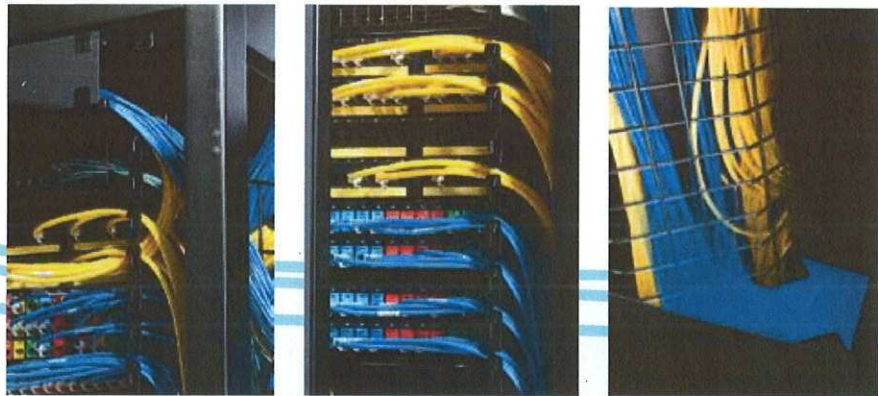
Legrand/Ortronics introduces Layer Zero as a new foundation for the OSI model to address the critical role that infrastructure plays in network performance and provide a new level of stability to the network.

To ensure maximum network efficiency, we offer a complete range of Layer Zero solutions designed to:

- Reduce power consumption and cooling costs
- Reduce the risk of equipment failure
- Enhance overall system performance



Three key factors are essential considerations when evaluating cable management systems for today's data centers, storage area networks (SAN), and large premise networks.



### Protection & Performance

To ensure maximum network performance, Mighty Mo cable management systems protect patch cords, cable, and equipment ports from damage by maintaining proper bend radius requirements, reducing tension on plugs and jacks, protecting network equipment ports, and supporting large cable bundles within the cabinet.

### Density

Mighty Mo cable management systems are fully equipped to handle the density of today's high performance networks while allowing for easy moves, adds, and changes. The Mighty Mo cabinet cable management system provides ample capacity for a minimum of 48 Category 6a patch cords per rack unit on a single side of the equipment, which is often necessary to avoid a fan tray, power supply or other removable part of the equipment.

### Airflow

The heat generated from increased server densities and higher speed network equipment makes cooling a top concern for today's IT administrators and data center managers. With heat being the most common reason for equipment failures, proper cooling is essential to reliable operations. Designed specifically to improve airflow, Ortronics® Mighty Mo cabinet design enables more efficient cooling and reduces power consumption.



# Cabinet Tested

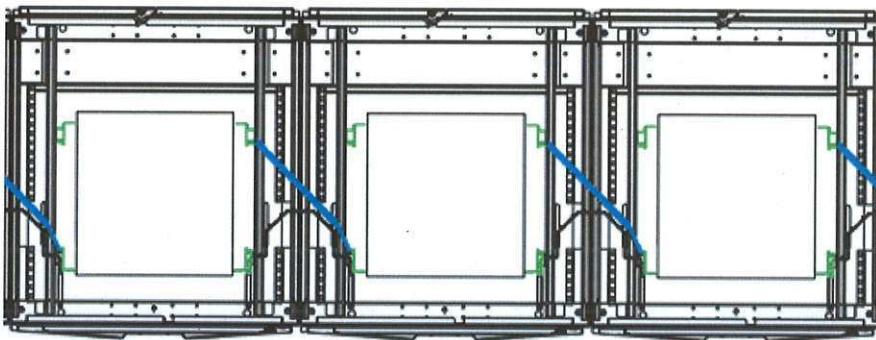
MIGHTY MO

04

WWW.LEGRAND.US/ORTRONICS

## TEST.03

Section view of test layout

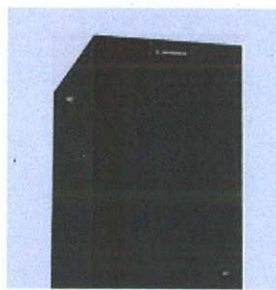


## Reduce Energy Consumption with the innovative Ortronics® Mighty Mo cabinet airflow baffle system

The heat generated from increased server densities and higher speed network equipment makes cooling a top concern for today's IT administrators and data center managers. With heat being the most common reason for equipment failures, proper cooling is essential to reliable operations. The preferred method of cooling in today's data centers is

the cold-aisle/hot-aisle approach.

The innovative Mighty Mo cabinet airflow baffle system is designed to redirect airflow from side venting equipment from the cold aisle to the hot aisle to maintain maximum cooling. The baffle is a full height barrier that allows only cold-aisle air to the equipment and also provides a complete



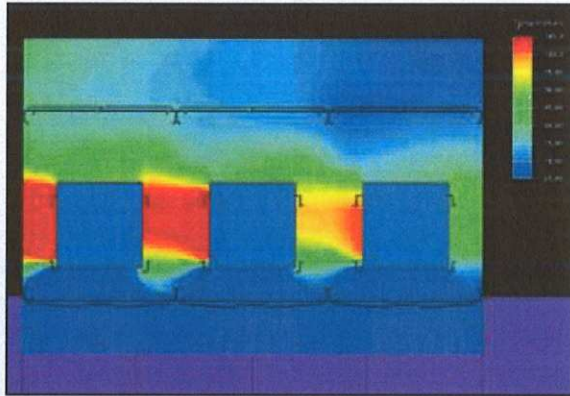
barrier to eliminate hot air recirculation. Blanking panels help to prevent the unintended flow of air through the rack.

The fluid dynamics analysis to the right

THE INNOVATIVE  
MIGHTY MO CABINET  
AIRFLOW BAFFLE  
SYSTEM IS  
DESIGNED TO  
REDIRECT AIRFLOW  
FROM SIDE VENTING  
EQUIPMENT FROM  
THE COLD AISLE  
TO THE HOT AISLE  
TO MAINTAIN  
MAXIMUM COOLING.

illustrates the significant cooling effect of the airflow baffle system versus alternative methods. The models show the analysis of the thermal characteristics of three network cabinets at the center of a row within the data center. Each cabinet is loaded with side to side venting switches and front vertical managers with a cable fill rate of 40%.

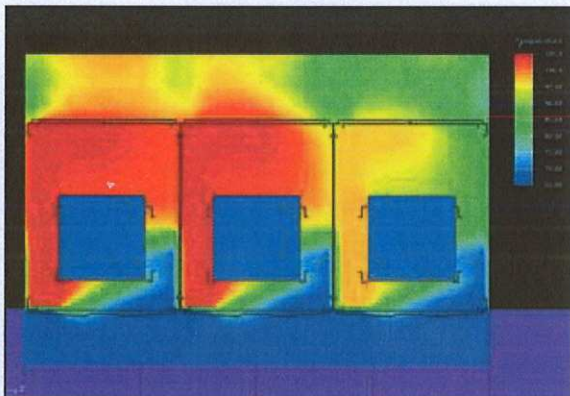




**TEST.01**

**Typical cabinet without dividers or Airflow Baffles**

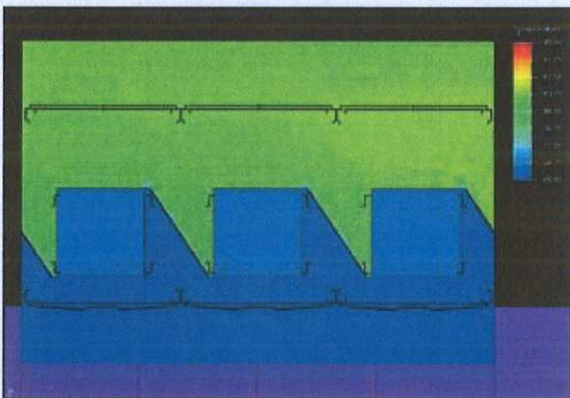
When side venting equipment is mounted in typical cabinets without side panels or dividers even maintaining the recommended distance between the equipment does not provide adequate cooling in a cold-aisle/hot-aisle environment. The problem with this approach is that it allows much of the exhaust of one switch to enter the intake of the next switch. Each switch down the row is receiving less cooling, even though the cold aisle air temperature is set at an appropriate 65° to 70°F.



**TEST.02**

**Typical cabinet with Cabinet Dividers**

Adding divider panels does little to improve the cooling in a cold-aisle/hot-aisle environment. This approach allows both the cold aisle and the hot aisle to provide air to the intake of the equipment. As the hot air is exhausted it recirculates back to the intake side of the equipment. Again each switch is receiving less cool air as you go down the row.

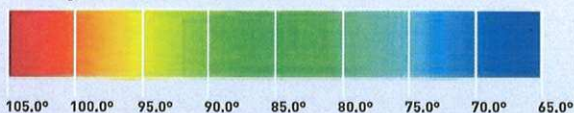


**TEST.03**

**Mighty Mo® Cabinet with Mighty Mo Airflow Baffles**

When using the Mighty Mo cabinet airflow baffles the intake air is always supplied from the cold aisle and the exhaust is directed by the baffles to the hot aisle. The use of filler panels on the rear rails in addition to the full height airflow baffles eliminates the recirculation of hot air within the cabinets.

**Temperature Control**



The first two examples show hot and cold air mixing at the intake with exhaust temperatures reaching the 105°F mark. The Mighty Mo cabinet airflow baffle solution reduces the exhaust temperature by 20°. This reduction allows the data center temperature set point to be raised, creating significant OPEX savings.





# Cabinet Features

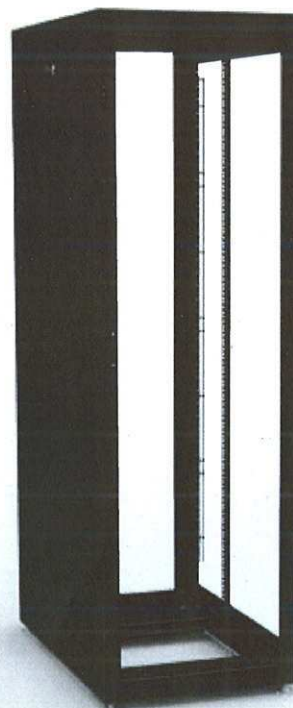
MIGHTY MO®

06

WWW.LEGRAND.US/ORTRONICS

## Mighty Mo

Everything your network could want in a cabinet.



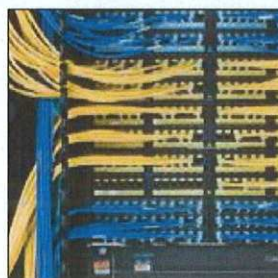
### FULLY CONFIGURABLE

Mighty Mo® cabinets are built to your configuration and arrive fully assembled with all components installed and accessories included, reducing equipment deployment time and overall costs.



### HEAVY-DUTY 14 GAUGE CONSTRUCTION

Our standard 14ga. welded steel frame offers improved durability over conventional 16 ga. cabinets. Mighty Mo doors are especially designed to eliminate the irritating flex found in less well built cabinets.



### CABLE MANAGEMENT

Mighty Mo vertical and horizontal managers provide improved management for both servers and high density switches. Available bend limiters provide standards compliant protection for fiber and 10G copper patch cords.



### PASSIVE THERMAL MANAGEMENT

Mighty Mo baffles redirect the airflow of side vented equipment from front to rear ensuring the proper flow of air from cold aisle to hot aisle.





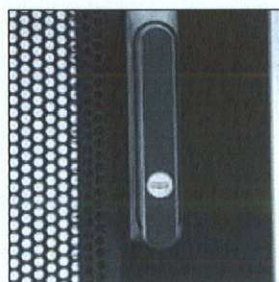
07

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#### THERMAL PROTECTION

A wide selection of top panels, fans and doors are available to ensure adequate ventilation is provided to keep equipment at the optimal operating conditions.



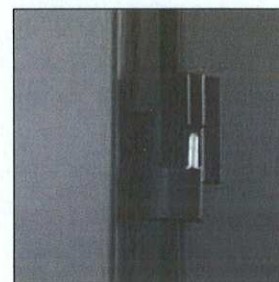
#### SECURITY

Doors include locking handles to prevent unauthorized access and tampering. Side panels also come equipped with locks.



#### MOBILITY

Levelers come standard with frames. Swivel casters are optional for added mobility.



#### 180° DOOR SWING WITH SELF-CONTAINED HINGES

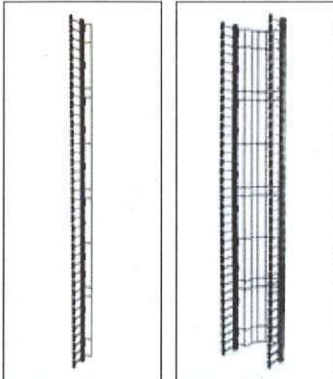
Self-contained 180 degree hinges used on our surface mount doors have no removable pins that can be lost! These hinges eliminate aisle blockage when loading or performing maintenance on equipment without removing the door.



# Cabinet System

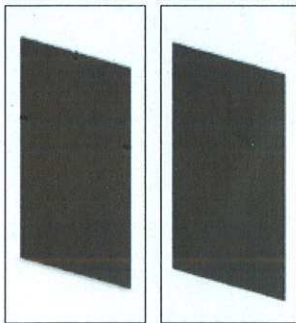
MIGHTY MO

## VERTICAL MANAGERS



See pages 18-19 for more details

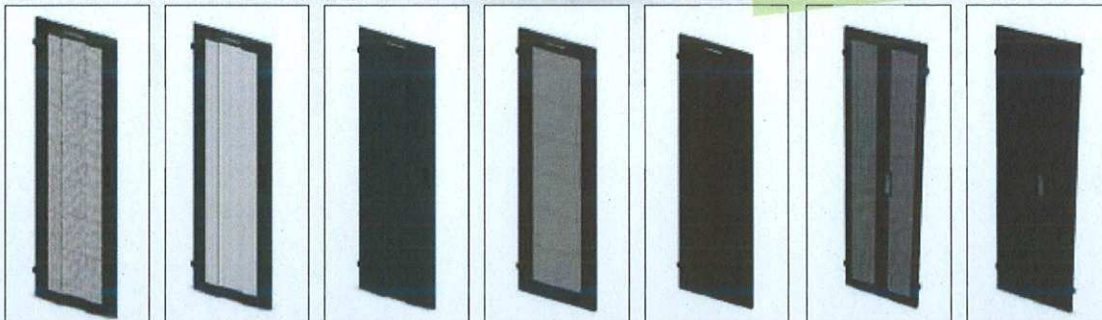
## SIDE PANELS



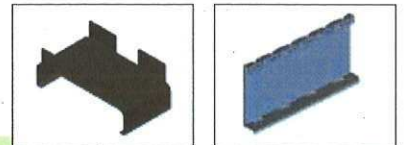
See page 16 for more details

## DOORS

See pages 13-15 for more details

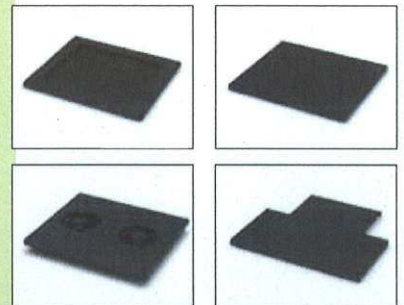


## CABLE TROUGHS



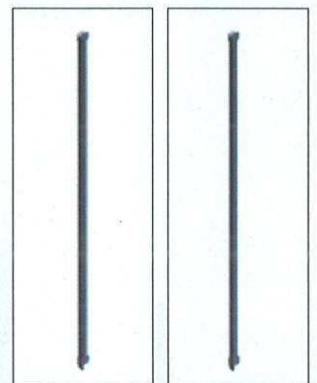
See page 20 for more details

## TOP PANELS & OPTIONS



See page 17 for more details

## MOUNTING RAILS



See page 12 for more details

# Pre-Configured

MIGHTY MO™ CABINET BUILD

Legrand | Ortronics  
has assembled some  
of the most popular  
cabinet sizes and  
accessories together  
into easy to order  
part numbers.

## Pre-Configured Server Cabinets

### All pre-configured server cabinet versions include:

- Frame configured with cable opening at bottom rear
- Frame levelers
- Two pairs of RU labeled mounting rails with 3/8" square holes
- Full profile mesh front door
- Split flat mesh rear door
- Two "L" shaped finger managers on rear rails
- Vertical PDU mount and lacing bar
- Divider or side panels as stated below
- Solid top panel in front
- Cable entry top panel in rear
- Rack unit cage nuts #12-24 thread (package of 50)
- Two packages of 50 panel mounting screws #12-24 (total of 100)
- Additional adhesive rack unit labels (mounted inside of rear set of rails)

PART NO. Divider Version	PART NO. Side Panels Version	DESCRIPTION Server Cabinet Sizes (Depth includes doors)
MMC422440-00005	MMC422440-00006	42 RU x 24" wide x 42" deep
MMC422446-00002	MMC422446-00003	42 RU x 24" wide x 48" deep
MMC472440-00003	MMC472440-00004	47 RU x 24" wide x 42" deep
MMC472446-00001	MMC472446-00002	47 RU x 24" wide x 48" deep
MMC423240-0000G	MMC423240-0000H	42 RU x 32" wide x 42" deep
MMC423246-00007	MMC423246-00008	42 RU x 32" wide x 48" deep
MMC473240-00003	MMC473240-00004	47 RU x 32" wide x 42" deep
MMC473246-00001	MMC473246-00002	47 RU x 32" wide x 48" deep

"Divider" versions have a right side divider panel and ganging hardware (for within row)  
"Side Panels" versions have a set of end panels (for stand alone or to create ends of row)

## Pre-Configured Network Cabinets

### All pre-configured network cabinet versions include:

- Frame configured with cable opening at bottom front
- Frame levelers
- Two pairs of RU labeled mounting rails with #12-24 tapped holes
- Full profile plexiglas front door
- Full flat solid rear door
- Two "L" shaped finger managers on front rails
- Right and left locking side panels
- Fan top panel in front
- Cable entry top panel in rear
- Package of 50 panel mounting screws #12-24

Network Cabinet	Network Cabinet Size
MMC422434-00004	42 RU x 24" W x 36" D
MMC423234-0000A	42 RU x 32" W x 36" D





# Configuration

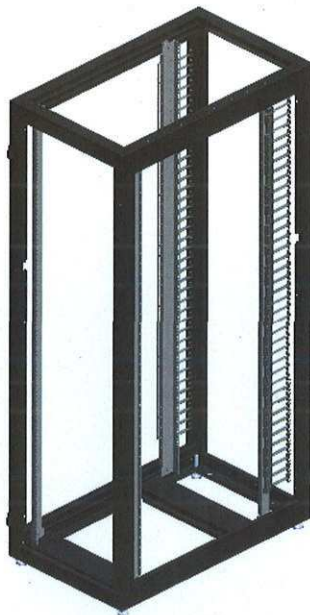
## MIGHTY MO® CABINET SYSTEM

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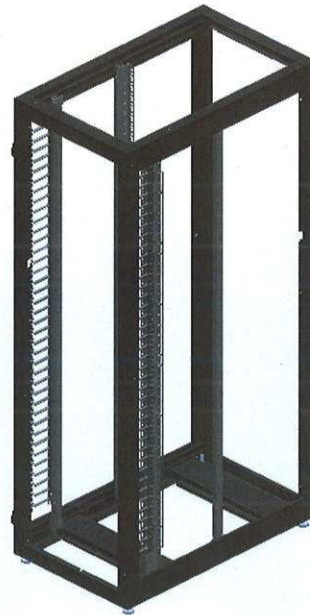
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➔ The following pages display all the components needed to configure your cabinet

The Mighty Mo® cabinet frame is specifically designed with cable pathways where you need them. In order to maximize the benefit of this design, first select between a **server** or **network** frame orientation.



SERVER FRAME



NETWORK FRAME

### SERVER FRAMES OFFER

- Cable openings positioned at the rear of the frame to support rack mounted servers
- Rack mounting rails positioned to match the most current servers
- Optional vertical managers mounted in the rear of the cabinet to manage the server cables

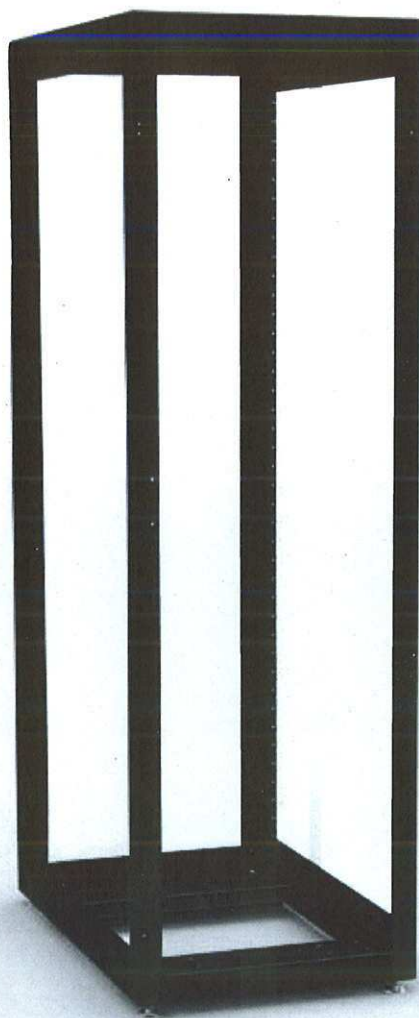
### NETWORK FRAMES OFFER

- Cable openings positioned at the front of the frame to support network equipment and copper and fiber panels
- Rack mounting rails positioned to match the most widely used equipment
- Optional vertical managers mounted in the front of the cabinet to manage the patching field

After selecting your frame color and size, continue building your custom cabinet by selecting mounting rails, doors, side panels, top panels and options. To receive a bill of materials for your custom, configured cabinet, please contact your local Ortronics sales representative.

# Frames

MIGHTY MO® CABINET BUILD



## FRAME FEATURES

- EIA mounting rails ordered separately
- Fully welded 14 GA (.075") steel construction
- 2000 lb. static frame load capacity
- Top, side, and bottom cable access
- Includes holes (with caps) on side for ganging frames

**Mighty Mo® cabinet frames** consist of a fully welded frame and come standard with leveling feet. Casters are available as a configurable option. The optional doors, top panels and side panels are removable allowing simple integration of equipment and cabling into the cabinet. Overall cabinet depth, including doors, is 2" larger than listed frame dimensions.

PART NO.	DESCRIPTION
OR-MMC242434-B	24U x 24"W x 34"D, height is 48.75", Basic Black
OR-MMC422434-B	42U x 24"W x 34"D, height is 80.25", Basic Black
OR-MMC423234-B	42U x 32"W x 34"D, height is 80.25", Basic Black
OR-MMC472434-B	47U x 24"W x 34"D, height is 89", Basic Black
OR-MMC473234-B	47U x 32"W x 34"D, height is 89", Basic Black
OR-MMC422440-B	42U x 24"W x 40"D, height is 80.25", Basic Black
OR-MMC422446-B	42U x 24"W x 46"D, height is 80.25", Basic Black
OR-MMC423240-B	42U x 32"W x 40"D, height is 80.25", Basic Black
OR-MMC423246-B	42U x 32"W x 46"D, height is 80.25", Basic Black
OR-MMC472440-B	47U x 24"W x 40"D, height is 89", Basic Black
OR-MMC472446-B	47U x 24"W x 46"D, height is 89", Basic Black
OR-MMC473240-B	47U x 32"W x 40"D, height is 89", Basic Black
OR-MMC473246-B	47U x 32"W x 46"D, height is 89", Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

NOTE: The height of the cabinet includes levelers. Casters add 1.25" to the height of the cabinet.





# Mounting Rails

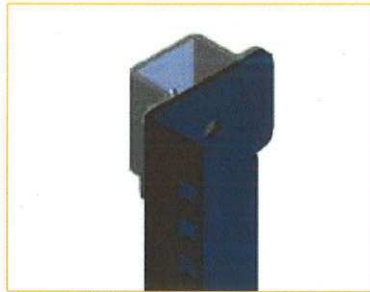
MIGHTY MO® CABINET BUILD

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TOP VIEW



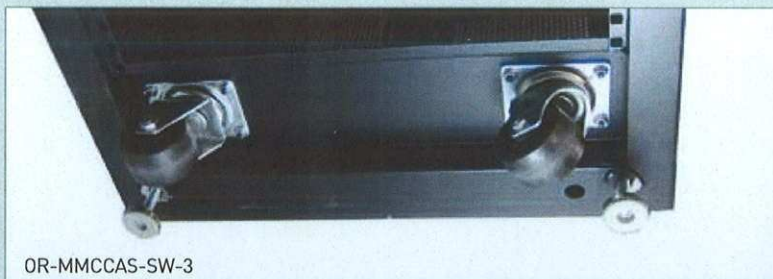
**Mighty Mo® cabinet mounting rails** are available with either .375" square holes or #12-24 tapped holes. The tapped holes allow fast installation of network equipment. Square holes are ideal for server environments and require cage nuts and screws (sold separately, see page 16) for mounting equipment.

- Manufactured of 12GA (0.105") steel
- Z-shape for increased rail strength
- Fully adjustable front to back
- Mounting hardware included
- Each item includes one pair of rails

PART NO.	DESCRIPTION
OR-MMC2424M38-B	24U, 0.375" Square Holes for 24"W Frame - 1 pair with RU labels, Basic Black
OR-MMC2424M12-B	24U, #12-24 Tapped Holes for 24"W Frame - 1 pair with RU labels, Basic Black
OR-MMC4224M38-B	42U, 0.375" Square Holes for 24"W Frame - 1 pair with RU labels, Basic Black
OR-MMC4224M12-B	42U, #12-24 Tapped Holes for 24"W Frame - 1 pair with RU labels, Basic Black
OR-MMC4724M38-B	47U, 0.375" Square Holes for 24"W Frame - 1 pair with RU labels, Basic Black
OR-MMC4724M12-B	47U, #12-24 Tapped Holes for 24"W Frame - 1 pair with RU labels, Basic Black



# Casters



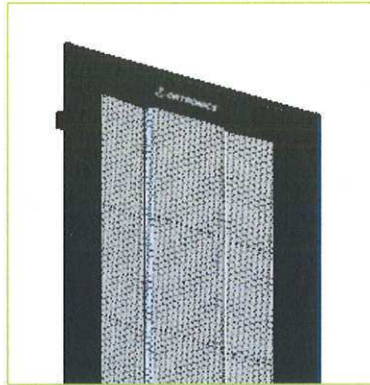
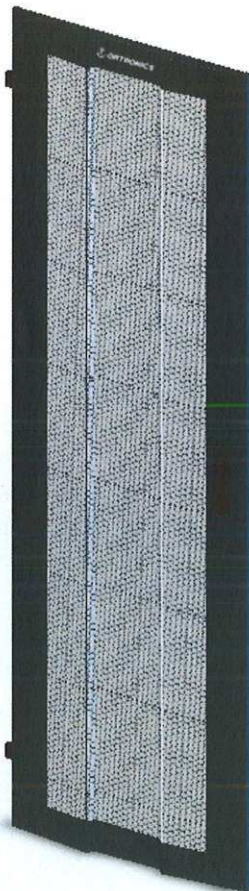
OR-MMCCAS-SW-3

Swivel casters available as an option for the bottom of cabinet frame.

PART NO.	DESCRIPTION
OR-MMCCAS-SW-3	Casters, Swivel, 3" diameter, Quantity: 4

## Doors

MIGHTY MO® CABINET BUILD



The **full profile mesh** door consists of an 18 GA (0.048") steel door with welded outside frame and center mesh with .197" diameter holes on .230" staggered centers. The profile shape increases the airflow area by 72" square inches over typical flat doors. This door is used for securing the interior contents while allowing for maximum airflow through the cabinet. It is typically used on the front of the cabinet to maintain a front-to-back airflow pattern.



The **full profile plexiglas** door is manufactured from 18 GA (0.048") steel and Lexan®. This door is used for viewing the interior contents while preventing air from entering or exiting. It is typically used on the front of the cabinet when using fans to maintain a bottom-to-top airflow pattern.

### NOTE:

- All full width doors are shipped left-hinged and are field reversible.

PART NO.	DESCRIPTION
OR-MMC2424DFPM-B	Full Profile Mesh for 24U x 24"W Frame - Basic Black
OR-MMC4224DFPM-B	Full Profile Mesh for 42U x 24"W Frame - Basic Black
OR-MMC4232DFPM-B	Full Profile Mesh for 42U x 32"W Frame - Basic Black
OR-MMC4724DFPM-B	Full Profile Mesh for 47U x 24"W Frame - Basic Black
OR-MMC4732DFPM-B	Full Profile Mesh for 47U x 32"W Frame - Basic Black
OR-MMC2424DFPP-B	Full Profile Plexi for 24U x 24"W Frame - Basic Black
OR-MMC4224DFPP-B	Full Profile Plexi for 42U x 24"W Frame - Basic Black
OR-MMC4232DFPP-B	Full Profile Plexi for 42U x 32"W Frame - Basic Black
OR-MMC4724DFPP-B	Full Profile Plexi for 47U x 24"W Frame - Basic Black
OR-MMC4732DFPP-B	Full Profile Plexi for 47U x 32"W Frame - Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

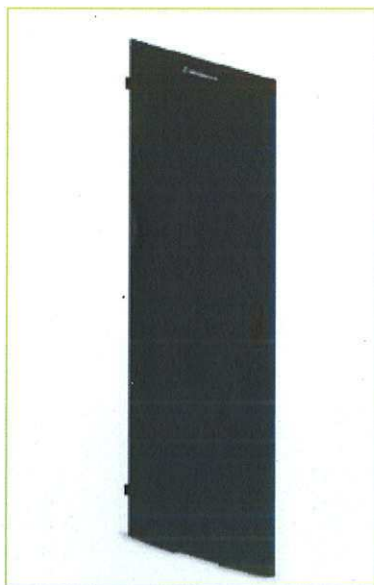


# Doors

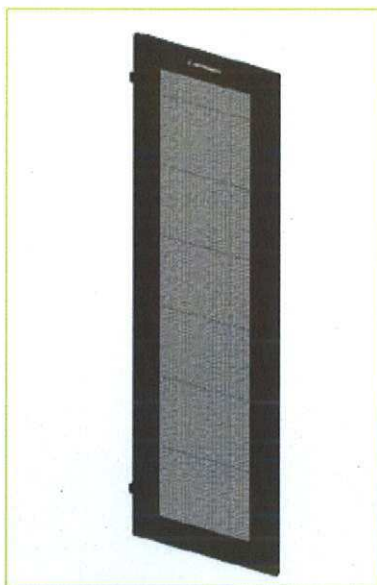
MIGHTY M.O. CABINET BUILD

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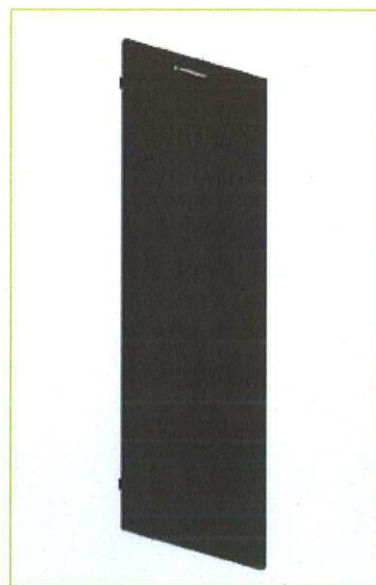
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The **full profile solid** door is manufactured from 18 GA (0.048") steel. This type of door is used for hiding the interior contents while preventing air from entering or exiting. It is typically used on the front of the cabinet when using fans to maintain a bottom-to-top airflow pattern.



The **full flat mesh** door consists of an 18 GA (0.048") steel door with welded outside frame and center mesh with .197" diameter holes on .230" staggered centers. This option is commonly used for the rear door when maintaining a front-to-back airflow pattern.



The **full flat solid** door is manufactured from 18 GA (0.048") steel. This door option is used to prevent access to cabinet's contents, while containing airflow. It is commonly used for the rear of the cabinet while maintaining bottom-to-top airflow pattern using fans.

PART NO.	DESCRIPTION
OR-MMC2424DFPS-B	24U x 24"W Frame, Basic Black
OR-MMC4224DFPS-B	42U x 24"W Frame, Basic Black
OR-MMC4232DFPS-B	42U x 32"W Frame, Basic Black
OR-MMC4724DFPS-B	47U x 24"W Frame, Basic Black
OR-MMC4732DFPS-B	47U x 32"W Frame, Basic Black

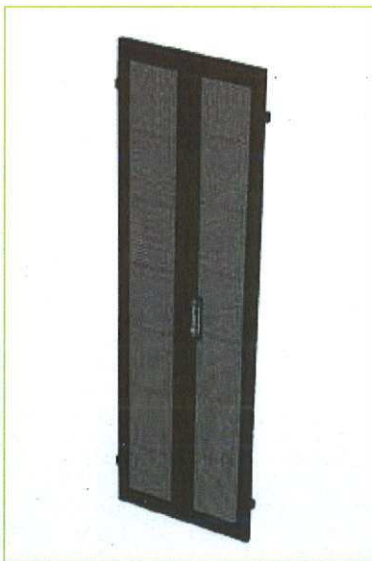
NOTE: Replace 'B' with 'G' for Cool Gray.

PART NO.	DESCRIPTION
OR-MMC2424DFFM-B	24U x 24"W Frame, Basic Black
OR-MMC4224DFFM-B	42U x 24"W Frame, Basic Black
OR-MMC4232DFFM-B	42U x 32"W Frame, Basic Black
OR-MMC4724DFFM-B	47U x 24"W Frame, Basic Black
OR-MMC4732DFFM-B	47U x 32"W Frame, Basic Black

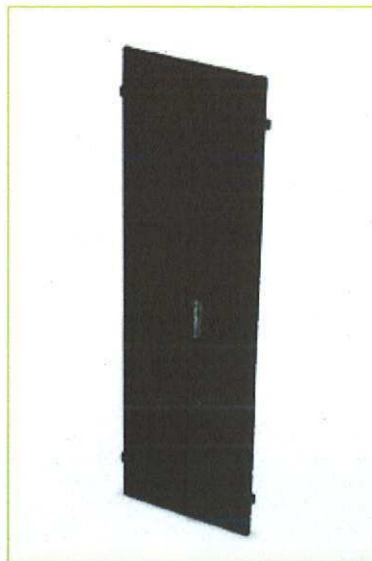
NOTE: Replace 'B' with 'G' for Cool Gray.

PART NO.	DESCRIPTION
OR-MMC2424DFFS-B	24U x 24"W Frame, Basic Black
OR-MMC4224DFFS-B	42U x 24"W Frame, Basic Black
OR-MMC4232DFFS-B	42U x 32"W Frame, Basic Black
OR-MMC4724DFFS-B	47U x 24"W Frame, Basic Black
OR-MMC4732DFFS-B	47U x 32"W Frame, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.



The **split flat mesh** door consists of an 18 GA (0.048") steel door with welded outside frame and center mesh with .197" diameter holes on .230" staggered centers. This option is commonly used as the rear door when space is limited, to maintain front-to-rear airflow pattern. See pages 10 and 11 for other mesh door options.



The **split flat solid** door is manufactured from 18 GA (0.048") steel. This type of door is used for hiding the interior contents while preventing air from entering or exiting. This is typically used on the rear of the cabinet, with limited space, when using fans to maintain bottom-to-top airflow.

PART NO.	DESCRIPTION
OR-MMC2424DSFM-B	24U x 24"W Frame, Basic Black
OR-MMC4224DSFM-B	42U x 24"W Frame, Basic Black
OR-MMC4232DSFM-B	42U x 32"W Frame, Basic Black
OR-MMC4724DSFM-B	47U x 24"W Frame, Basic Black
OR-MMC4732DSFM-B	47U x 32"W Frame, Basic Black

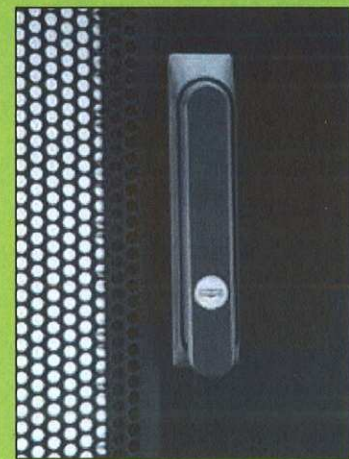
NOTE: Replace 'B' with 'G' for Cool Gray.

PART NO.	DESCRIPTION
OR-MMC2424DSFS-B	24U x 24"W Frame, Basic Black
OR-MMC4224DSFS-B	42U x 24"W Frame, Basic Black
OR-MMC4232DSFS-B	42U x 32"W Frame, Basic Black
OR-MMC4724DSFS-B	47U x 24"W Frame, Basic Black
OR-MMC4732DSFS-B	47U x 32"W Frame, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

## DOOR HANDLES

Choice of swing handle with keyed lock or swing handle with combination/key lock. They are keyed alike to match front, rear and side panel locks.



PART NO.	Description
OR-MMCDHSKL-0333	Swing, Key Lock, Key# 0333
OR-MMCDHSCK-0333	Swing, Combination/Key Lock, Key#0333



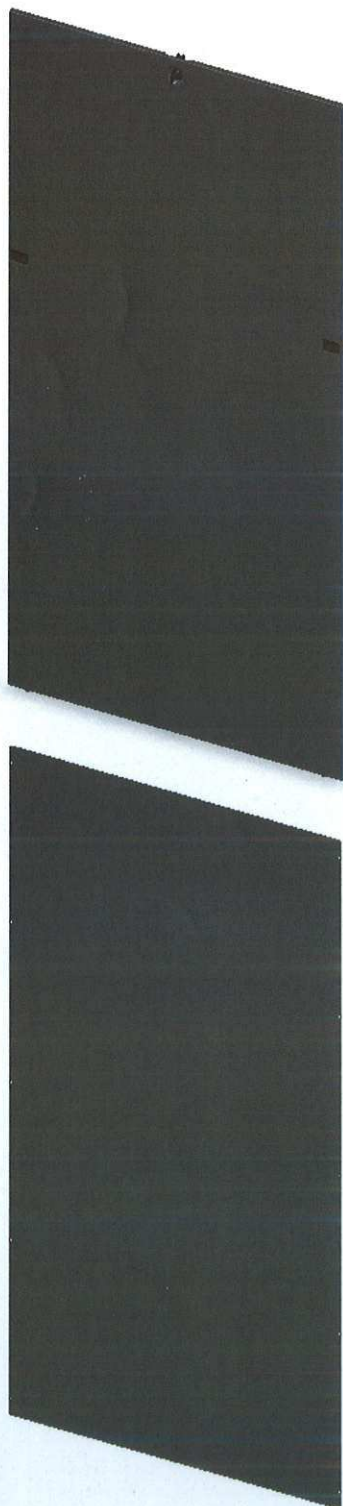


# Side Panels

MIGHTY MO<sup>®</sup> CABINET BUILD

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Each item consists of one side panel or one interbay divider panel. Use side panels to enclose a single cabinet or on the end of a row. Interbay dividers separate ganged cabinets from each other and contain airflow within individual cabinets in a row

- Side panels include latches and locks
- Interbay dividers include mounting hardware

## SIDE PANEL

PART NO.	DESCRIPTION
OR-MMC2434SPSL-B	Solid, Locking for 24U x 34"D Frame, Basic Black
OR-MMC4234SPSL-B	Solid, Locking for 42U x 34"D Frame, Basic Black
OR-MMC4240SPSL-B	Solid, Locking for 42U x 40"D Frame, Basic Black
OR-MMC4246SPSL-B	Solid, Locking for 42U x 46"D Frame, Basic Black
OR-MMC4734SPSL-B	Solid, Locking for 47U x 34"D Frame, Basic Black
OR-MMC4740SPSL-B	Solid, Locking for 47U x 40"D Frame, Basic Black
OR-MMC4746SPSL-B	Solid, Locking for 47U x 46"D Frame, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

## INTERBAY DIVIDER PANEL

PART NO.	DESCRIPTION
OR-MMC4234SPSN-B	Solid, Bolt-on for 42U x 34"D Frame, Basic Black
OR-MMC4240SPSN-B	Solid, Bolt-on for 42U x 40"D Frame, Basic Black
OR-MMC4246SPSN-B	Solid, Bolt-on for 42U x 46"D Frame, Basic Black
OR-MMC4734SPSN-B	Solid, Bolt-on for 47U x 34"D Frame, Basic Black
OR-MMC4740SPSN-B	Solid, Bolt-on for 47U x 40"D Frame, Basic Black
OR-MMC4746SPSN-B	Solid, Bolt-on for 47U x 46"D Frame, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

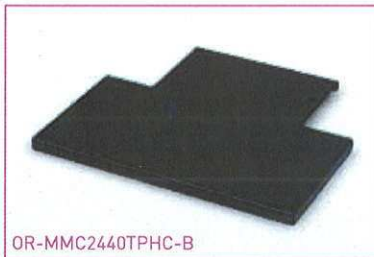


# Top Panels

MIGHTY MO® CABINET BUILD



OR-MMC2440TPH1-B



OR-MMC2440TPHC-B

**Top panels** are half-depth allowing for customization of the front and rear top of the cabinet. A combination of solid and cable entry versions are recommended for front-to-back airflow. Mesh is well suited for passive dissipation. Fan version is supplied with two 235 CFM 6" diameter fans and finger guards to create bottom-to-top airflow.

PART NO.	DESCRIPTION
OR-MMC2434TPHS-B	Solid for 24"W x 34"D Frames, Basic Black
OR-MMC2440TPHS-B	Solid for 24"W x 40"D Frames, Basic Black
OR-MMC2446TPHS-B	Solid for 24"W x 46"D Frames, Basic Black
OR-MMC3234TPHS-B	Solid for 32"W x 34"D Frames, Basic Black
OR-MMC3240TPHS-B	Solid for 32"W x 40"D Frames, Basic Black
OR-MMC3246TPHS-B	Solid for 32"W x 46"D Frames, Basic Black
OR-MMC2434TPHM-B	Mesh for 24"W x 34"D Frames, Basic Black
OR-MMC2440TPHM-B	Mesh for 24"W x 40"D Frames, Basic Black
OR-MMC2446TPHM-B	Mesh for 24"W x 46"D Frames, Basic Black
OR-MMC3234TPHM-B	Mesh for 32"W x 34"D Frames, Basic Black
OR-MMC3240TPHM-B	Mesh for 32"W x 40"D Frames, Basic Black
OR-MMC3246TPHM-B	Mesh for 32"W x 46"D Frames, Basic Black
OR-MMC2434TPHC-B	Cable Entry for 24"W x 34"D Frames, Basic Black
OR-MMC2440TPHC-B	Cable Entry for 24"W x 40"D Frames, Basic Black
OR-MMC2446TPHC-B	Cable Entry for 24"W x 46"D Frames, Basic Black
OR-MMC3234TPHC-B	Cable Entry for 32"W x 34"D Frames, Basic Black
OR-MMC3240TPHC-B	Cable Entry for 32"W x 40"D Frames, Basic Black
OR-MMC3246TPHC-B	Cable Entry for 32"W x 46"D Frames, Basic Black
OR-MMC2434TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 24"W x 34"D Frames, Basic Black
OR-MMC2440TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 24"W x 40"D Frames, Basic Black
OR-MMC2446TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 24"W x 46"D Frames, Basic Black
OR-MMC3234TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 32"W x 34"D Frames, Basic Black
OR-MMC3240TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 32"W x 40"D Frames, Basic Black
OR-MMC3246TPH1-B	Fan - (2) 6" 235 CFM ea. 120V for 32"W x 46"D Frames, Basic Black
OR-MMC2434TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 24"W x 34"D Frames, Basic Black
OR-MMC2440TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 24"W x 40"D Frames, Basic Black
OR-MMC2446TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 24"W x 46"D Frames, Basic Black
OR-MMC3234TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 32"W x 34"D Frames, Basic Black
OR-MMC3240TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 32"W x 40"D Frames, Basic Black
OR-MMC3246TPH2-B	Fan - (2) 6" 235 CFM ea. 208V for 32"W x 46"D Frames, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

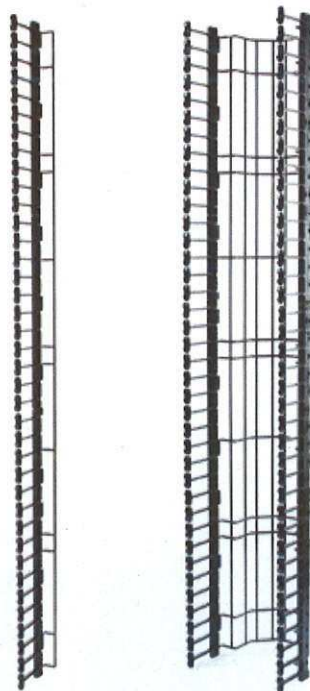


# Vertical Managers

MIGHTY MO® CABINET BUILD

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OR-MMC4202VMFL, OR-MMC4212VMFU

Mighty Mo® cabinet **vertical managers** protect patch cords, cable, and equipment ports from damage by maintaining proper bend radius requirements, reducing tension on plugs and jacks and protecting network equipment ports.

PART NO.	DESCRIPTION
OR-MMC2402VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 24U Frames
OR-MMC4202VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 42U Frames
OR-MMC4702VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 47U Frames
OR-MMC4212VMFU	Vertical Manager Fingers "U" Shape 12"W for 42U Frames
OR-MMC4712VMFU	Vertical Manager Fingers "U" Shape 12"W for 47U Frames

## WHAT'S YOUR SHAPE?



The **L shape** 1.5" version fits in single or ganged 24" and 32" wide cabinets. (with or without interbay divider panels).



The **U shape** 12" version fits in ganged 32" cabinets and can be used with baffles to create cold aisle/hot aisle airflow from side venting equipment.

## CABLE FILL CAPACITIES FOR VERTICAL MANAGERS

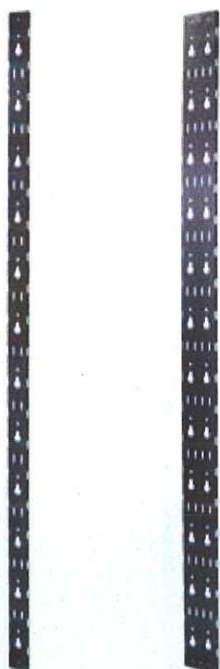
PART NUMBER	DESCRIPTION	USABLE AREA 24 WIDE CABINET (SQ. IN.) *	USABLE AREA 32 WIDE CABINET (SQ. IN.) *	CABLE O.D. (IN.)	RECOMMENDED CABLE FILL 40%		
					CAT 5E	CAT 6	CAT 6A
OR-MMC2402VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 24U Frames	24			288	240	168
OR-MMC4202VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 42U Frames	24			288	240	168
OR-MMC4202VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 42U Frames		56		672	560	392
OR-MMC4702VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 47U Frames	24			288	240	168
OR-MMC4702VMFL	Vertical Manager Fingers "L" Shape 1.5"W for 47U Frames		56		672	560	392
OR-MMC4212VMFU	Vertical Manager Fingers "U" Shape 12"W for 42U Frames		90		1080	900	630
OR-MMC4712VMFU	Vertical Manager Fingers "U" Shape 12"W for 47U Frames		90		1080	900	630

\*Usable area is calculated using managers on both sides of the cabinet. The "U" Shape vertical extends between two cabinets but the capacity is calculated for the two sides of a single cabinet.



# Vertical Managers

mighty mo® cabinet build



OR-MMC42VPMLS, OR-MMC42VPMLD

**Vertical PDU mount and lacing bars** can be used to mount PDUs or to manage distribution cables routing from patch panels and equipment out of the cabinet.

PART NO.	DESCRIPTION
OR-MMC24VPMLS	Vertical PDU Mount and Lacing Bar Single for 24U Frames
OR-MMC42VPMLS	Vertical PDU Mount and Lacing Bar Single for 42U Frames
OR-MMC47VPMLS	Vertical PDU Mount and Lacing Bar Single for 47U Frames
OR-MMC24VPMLD	Vertical PDU Mount and Lacing Bar Double for 24U Frames
OR-MMC42VPMLD	Vertical PDU Mount and Lacing Bar Double for 42U Frames
OR-MMC47VPMLD	Vertical PDU Mount and Lacing Bar Double for 47U Frames



OR-MMC420206VCT

**Vertical Cable Trays** consist of a pre-cut section of 2" x 6" Cablofil® tray and mounting hardware designed to mount inside the cabinet and manage distribution cables routing from the patch panels and equipment out of the cabinet. It mounts to the strut inside the cabinet and can be adjusted front to back.

PART NO.	DESCRIPTION
OR-MMC420206VCT	Vertical Cable Tray 2" Wide X 6" Deep for 42U Frames
OR-MMC470206VCT	Vertical Cable Tray 2" Wide X 6" Deep for 47U Frames

## HORIZONTAL CABLE CAPACITIES FOR VERTICAL CABLE TRAY

PART NO.	DESCRIPTION	USABLE AREA (SQ. IN.)	24 CNT BUNDLE CABLE	VERTICAL CABLE TRAY CAPACITY		
			O.D. (in.)	Cat 5e	Cat 6	Cat 6a
OR-MMC420206VCT	Vertical Cable Tray 2" Wide X 6" Deep for 42U Frames	14		240	168	96
OR-MMC470206VCT	Vertical Cable Tray 2" Wide X 6" Deep for 47U Frames	14		240	168	96



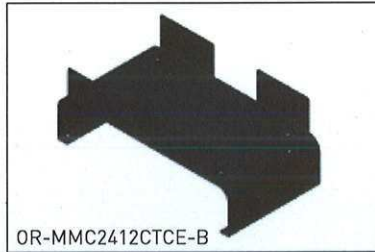
# Tray/Runway Brackets & Troughs

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MIGHTY MO® CABINET BUILD

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## Cable tray mounting brackets

mount to the top of the cabinet and utilize the Cablofil FAS method to attach cable tray without additional hardware. Cable tray mounting brackets can be used alone or with the cable troughs. **Cable troughs** mount on top of the cabinet frame and provide integrated overhead routing for cable. They are sized and pre-punched to interface with 6", 12" and 18" Cablofil® cable tray directly, or can be used together with the cable tray mounting bracket. **Cable runway mounting brackets** mount to the top of the cabinet and provide a surface for attaching 6", 12" or 18" wide runway.

## Cable tray mounting brackets

PART NO.	DESCRIPTION
OR-MMCCTMB06-B	Cable Tray Mounting Bracket with Cablofil FAS style attachment for 6" wide tray, Basic Black
OR-MMCCTMB12-B	Cable Tray Mounting Bracket with Cablofil FAS style attachment for 12" wide tray, Basic Black
OR-MMCCTMB18-B	Cable Tray Mounting Bracket with Cablofil FAS style attachment for 18" wide tray, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

## Cable troughs

PART NO.	DESCRIPTION
OR-MMC2406CTCE-B	Cable Trough, Center Exit, 6" Wide for 24"W Frames, Basic Black
OR-MMC2412CTCE-B	Cable Trough, Center Exit, 12" Wide for 24"W Frames, Basic Black
OR-MMC2418CTCE-B	Cable Trough, Center Exit, 18" Wide for 24"W Frames, Basic Black
OR-MMC3206CTCE-B	Cable Trough, Center Exit, 6" Wide for 32"W Frames, Basic Black
OR-MMC3212CTCE-B	Cable Trough, Center Exit, 12" Wide for 32"W Frames, Basic Black
OR-MMC3218CTCE-B	Cable Trough, Center Exit, 18" Wide for 32"W Frames, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.

## Cable runway mounting brackets

PART NO.	DESCRIPTION
OR-MMCCRMB06-B	Cable Runway Mounting Bracket for 6" wide runway, Basic Black
OR-MMCCRMB12-B	Cable Runway Mounting Bracket for 12" wide runway, Basic Black
OR-MMCCRMB18-B	Cable Runway Mounting Bracket for 18" wide runway, Basic Black

NOTE: Replace 'B' with 'G' for Cool Gray.